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EXAMINER	
OCHOA, JUAN CARLOS	
ART UNIT	**PAPER NUMBER**
2123	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/826,630	PINTO ET AL.	
	Examiner	Art Unit	
	Juan C. Ochoa	2123	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *19 September 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-19 and 22-40* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-19 and 22-40* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *19 September 2007* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No._____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *19 September 2007*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. The amendment filed 9/19/07 has been received and considered. Claims 20 and 21 are cancelled. Claims 1–19 and 22–40 are presented for examination.

Drawings

2. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because:

3. As to Figure 1, the newly added reference character "25" is not mentioned in the description.

4. Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Objections

5. Claim 1 line 11 refers to "population of variables", would be better as "population of predictor variables" to avoid any possible antecedent issues.

6. Claim 4 line 2 refers to "of predictor", would be better as "of potential predictor" to avoid any possible antecedent issues.

7. Claim 5 line 3 refers to the term "a third predetermined level of significance". Term raises indefiniteness issues; since its parent claim, claim 1, lacks "a second predetermined level of significance". Claim 3, however, has "a second predetermined level of significance".

Claim Rejections - 35 USC § 103

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 103 that form the basis for the rejections under this section made in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

9. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

10. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation

under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

11. Claims 1–19 and 22–40, are rejected under 35 U.S.C. 103(a) as being unpatentable over by Cabena et al., (Cabena hereinafter), Intelligent Miner for Data Applications Guide (see IDS dated 12/18/06), taken in view of Harrison, (Harrison hereinafter), An Intelligent Business Forecasting System (see IDS dated 12/18/06).

12. As to claim 1, Cabena discloses a machine-based method comprising in connection with a project in which a user generates a predictive model based on historical data about a system being modeled (see chapter 1.5.1, Pages 9-11): selecting variables having at least a first predetermined level of significance from a pool of potential predictor variables associated with the data, to form a population of predictor variables (see page 101, 2nd and 3rd paragraphs), extending the population of predictor variables to include non-linear interactions of variables and extending the population of predictor variables to include linear and non-linear extensions with remaining previously excluded variables (see page 93, 2nd paragraph), generating a possible model of the extended population of variables using a subsample of the data by the model generation method (see "Feature Selection" and "Train and Test" in page 95), determining whether the possible model generalizes to the data other than the subsample (see page 101, last paragraph), applying the possible model to all of the data to generate a final model, cross-validating the final model using random portions of

the data (see page 97, last paragraph), and interacting with the system being modeled based on the final model (see "To ensure that the model has not overfit the data and to assess the model performance against a data set that has the same characteristics as the application universe, the model should be executed against the test data in test mode" in page 102, 1st paragraph, lines 1–5 and "After having iteratively improved the models, you chose the best model" in page 102, 3rd paragraph, line 1).

13. While Cabena discloses generating a predictive model based on historical data about a system being modeled, Cabena fails to disclose automatically selecting a model generation method from among a set of available model generation methods to match characteristics of the historical data.

14. Harrison discloses automatically selecting a model generation method from among a set of available model generation methods to match characteristics of the historical data (see page 233, col. 2, next to last paragraph, last 7 lines).

15. Cabena and Harrison are analogous art because they are both related to predictive modelling.

16. Therefore, it would have been obvious to one of ordinary skill in this art at the time of invention by applicant to utilize the automatic model selection of Harrison in the method of Cabena because Harrison explore the possibility of the integration of expert systems technology with a forecasting decision support system (see page 229, col. 1, lines 1–4), and as a result, Harrison reports that testing of his prototype shows that the system is useful for managers who have no forecasting technique and computing

background and want to improve their decision making by means of quantitative forecasting (see page 235, col. 2, next to last paragraph).

17. As to claim 2, Cabena discloses a method also including displaying information to the user of the size of the pool of predictor variables (see "Visualizations with only one or two regions" in page 101, 3rd paragraph, line 2).

18. As to claim 3, Cabena discloses a method also including enabling a user to point and click to reduce or extend the size of the pool of predictor variables, retaining only predictor variables having at least a second predetermined level of significance (see "remove the strong variables from the chosen input fields and split the data into multiple files based on the segmentation by the strong variables as indicated by the tree" in page 101, 3rd paragraph, lines 4–7).

19. As to claim 4, Cabena discloses a method in which the user is enabled to invoke an automatic process to select a class of models most suitable to the pool of predictor variables associated with the data (see page 118, last paragraph).

20. As to claim 5, Cabena discloses a method in which the user is enabled to point and click to adjust the model selection criterion to retain only the variables having at least a third predetermined level of significance for the target goal (see page 133, 1st paragraph).

21. As to claim 6, Cabena discloses a method in which the user is enabled to point and click to cause display of information about the model performance (see "algorithm outputs a summary screen showing the mean and root mean square error" in page 100, 7th paragraph and/or page 101, last paragraph, lines 1–3).

22. As to claim 7, Cabena discloses a method in which the information about the model performance includes at least one of: a statistical report card, a link to a statistical report chart, a lift chart, a link to the lift chart (see page 101, last paragraph, lines 1–5 and page 105, 1st and 2nd paragraphs), a response comparison chart for each decile for each predictor variable in the model, or a link to the response comparison chart.

23. As to claim 8, Cabena discloses a method in which invocation of the link to the statistical report card causes display of the statistics of model performance (see "algorithm outputs a summary screen showing the mean and root mean square error" in page 100, 7th paragraph).

24. As to claim 9, Cabena discloses a method in which invocation of the link to the lift chart causes display of a non-cumulative lift chart (see page 101, last paragraph, lines 1–5 and page 105, 1st and 2nd paragraphs).

25. As to claim 10, Cabena discloses a method in which invocation of the link to the response comparison chart causes display of a response chart for each predictor variable in the model for each segment of interest (see "Method 2" in page 119, 3rd paragraph).

26. As to claim 11, Cabena discloses a method in which a user is enabled to choose interactively at least one performance criterion change or transformation or interaction of variables to improve a fit of the model (see "Maximum tree depth" in page 97, 4th paragraph).

27. As to claim 12, Cabena discloses a method also including a enabling a determination whether the model generalizes to the data other than the subsample,

and, if so, applying the possible model to all of the data to generate a final model, and cross-validating the final model using random portions of the data (see page 97, last paragraph).

28. As to claim 13, Cabena discloses a method in which the user is enabled to select at least one validation dataset and invoke a model process validation method (see "Value Prediction with RBF" in pages 97 and 98).

29. As to claim 14, Cabena discloses a method in which the user is enabled to point and click to cause display of information about the model process validation (see "Results Visualization" in page 100, 6th paragraph).

30. As to claim 15, Cabena discloses a method in which the information about the model process validation includes at least one of: a statistical report card, a link to a statistical report chart, a cumulative lift chart, a link to the cumulative lift chart and a non-cumulative lift chart, a link to the non-cumulative lift chart (see page 101, last paragraph, lines 1–5 and page 105, 1st and 2nd paragraphs).

31. As to claim 16, Cabena discloses a method in which the user is enabled to select at least one machine automated model development process applied to the entire dataset for a validated model process (see "Network architecture" in page 99, 3rd paragraph).

32. As to claim 17, Cabena discloses a method in which the user is enabled to point and click to cause display of information about the performance of the validated model process applied to the entire set of historical data (see page 101, last paragraph, lines 1–3).

33. As to claim 18, Cabena discloses a method in which the information about the model performance for two independent data subsets, the independent data subsets being randomly selected from the historical data, includes at least one of: a statistical report card, a link to a statistical report chart, a cumulative lift chart, a link to the cumulative lift chart and a non-cumulative lift chart, a link to the non-cumulative lift chart (see page 101, last paragraph, lines 1–5 and page 105, 1st and 2nd paragraphs).

34. As to claim 19, Cabena discloses a method in which the invocation of the link to the statistical report card causes display of the statistics of model process validation (see "algorithm outputs a summary screen showing the mean and root mean square error" in page 100, 7th paragraph and/or page 101, last paragraph, lines 1–3).

35. As to claim 22, Cabena discloses a method in which the final model and the model process validation results are stored persistently (see "Processing settings objects always ... create output data in a database" in page 24, "Processing Functions", 3rd paragraph, lines 1–2).

36. As to claim 23, Cabena discloses a method also including enabling the user to observe the number of predictor variables available for the model (see "remove the strong variables from the chosen input fields and split the data into multiple files based on the segmentation by the strong variables as indicated by the tree" in page 101, 3rd paragraph, lines 4–7).

37. As to claim 24, Cabena discloses a method in which a model method from a library of model methods most suitable to modeling the historical data is automatically selected (see page 11, 1st paragraph).

38. As to claim 25, Cabena discloses a method also including enabling the user to observe the performance of the model by means of links to a plurality of statistical and graphical reports (see "Results Visualization" in pages 100 and 101).

39. As to claim 26, Cabena discloses a method also enabling the user to select a means of validating the model development process (see "Value Prediction with RBF" in pages 97 and 98).

40. As to claim 27, Cabena discloses a method also enabling the user to observe the performance of the model for a training subset and a validation subset of the historical data (see "algorithm outputs a summary screen showing the mean and root mean square error" in page 100, 7th paragraph and/or page 101, last paragraph, lines 1–3).

41. As to claim 28, Cabena discloses a method also enabling the user to invoke at least one validated model development process to produce a final model enabling the use to observe the performance of the final model on at least two independent subsets, the independent subsets being randomly selected from the historical data (see page 101, last paragraph, lines 1–3).

42. As to claim 29, Cabena discloses a method enabling the persisting of the final model and intermediate results to a project database (see "Processing settings objects always ... create output data in a database" in page 24, “Processing Functions”, 3rd paragraph, lines 1–2).

43. As to claim 30, Cabena discloses a method enabling the final model to be applied to scoring at least one non-historical dataset wherein the propensity computed by the model is indexed by the score (see page 11, 2nd paragraph).

44. As to claim 31, Cabena discloses a machine-based method comprising in connection with a project, generating a predictive model based on the historical data (see chapter 1.5.1, Pages 9-11), displaying to a user a lift chart (see page 101, last paragraph, lines 1–5 and page 105, 1st and 2nd paragraphs), monotonicity (see page 101, last paragraph, last 3 lines and page 119, 2nd bullet from the bottom), and concordance scores (see Chapter 1.5.1, Pages 9-11) associated with each step in a step-wise model fitting process (see page 98, 2nd paragraph). While Cabena discloses generating a predictive model based on historical data about a system being modeled, Cabena fails to disclose automatically selecting a model generation method from among a set of available model generation methods to match characteristics of the historical data. Harrison discloses automatically selecting a model generation method from among a set of available model generation methods to match characteristics of the historical data about a system being modeled (see page 233, col. 2, next to last paragraph, last 7 lines).

45. As to claim 32, Cabena discloses a method also including enabling the user to observe changes in the fit of the model as variables associated with the data are added or removed from a predictor set of the variables (see "Maximum tree depth" in page 97, 4th paragraph).

46. As to claim 33, Cabena discloses a method also including enabling the user to terminate the fitting of the model when the fitting process reaches an optimal point (see "Maximum number of passes" in page 98, 2nd paragraph).

47. As to claim 34, Cabena discloses a machine-based method comprising receiving from separate sources, sets of potential predictor and dependent variables representing historical data about a system being modeled (see page 92, paragraphs 2–5), enabling a user of a model generation tool to combine at least two of the dependent variables from the sets of potential predictor and dependent variables (see "Okay Customer Set", "Good Customer Set" and "Create Objective Variable" items in page 90, Fig. 46) to generate a model to be used in interacting with the system being modeled (see "To ensure that the model has not overfit the data and to assess the model performance against a data set that has the same characteristics as the application universe, the model should be executed against the test data in test mode" in page 102, 1st paragraph, lines 1–5 and "After having iteratively improved the models, you chose the best model" in page 102, 3rd paragraph, line 1).

48. As to claim 35, Cabena discloses a method in which enabling the user to combine the variables includes providing a user interface that enables the user to identify the variables to be combined (see page 21, 1st paragraph).

49. As to claim 36, Cabena discloses a method in which the system being modeled comprises behavior of prospective or current customers with respect to products or services of a company and the method also includes adjusting outcome variables to normalize response rates across products or services with different response rates (see page 90, 2nd line from the bottom to page 91, 2nd line).

50. As to claim 37, Cabena discloses a method in which the system being modeled comprises behavior of current customers with respect to retention of a current service or

product of a vendor and the method also includes adjusting variables to normalize response rates across products or services with different response rates, using the computed propensities as indices of the scores (see page 90, 2nd line from the bottom to page 91, 2nd line).

51. As to claim 38, Cabena discloses a method also comprising determining a course of action to yield the most positive net present value outcome (see "the most positive NPV outcome" as "increase its profitability" in page 32, 3rd paragraph).

52. As to claim 39, Cabena discloses a method in which the determining includes selection of a mix of channel (see page 30, last paragraph) and product combinations (see "product associations" in page 32, 3rd paragraph).

53. As to claim 40, Cabena discloses a method in which the determining includes predicting retention in combination with response rate to predict net present value (see page 28, 2nd paragraph).

Response to Arguments

54. Applicant's arguments filed 9/19/07 have been fully considered, but they are not persuasive.

55. Regarding the IDS objections, deficiencies remain.

56. About the information disclosure statement filed 5/27/05 and its failure to comply with 37 CFR 1.98(a); Applicant was non–responsive, since no useful information was provided.

57. About the information disclosure statements filed 2/28/05, 5/27/05, 7/17/06, and 12/18/06 containing a large number of references submitted for consideration; the

Examiner requested the Applicant to identify any specific references, features, sections or figures in the references cited which are believed to have particular significance in the prosecution of this application or which are considered material to the patentability of the pending claims. The Applicant replied "the applicant considers U.S. Patent 6,879,971 to Keeler and U.S. Patent 6,954,758 to O'Flaherty to be particularly relevant" (see page 11, 2nd paragraph). Examiner notes that in the previous rejection Examiner had already considered and made of record U.S. Patent 6,879,971 as pertinent to applicant's disclosure.

58. Regarding the drawing objections, one deficiency remains, all previous objections withdrawn.

59. Regarding the claim objections, the amendment corrected all deficiencies and the objections are withdrawn.

60. Regarding the rejections under 112, the amendment corrected all deficiencies and those rejections are withdrawn.

61. Regarding the rejections under 101, the amendment corrected all deficiencies and the rejections are withdrawn.

62. Regarding the rejection under 102. Applicant's arguments with respect to claims have been considered but are moot in view of the new ground(s) of rejection. In the instant rejection, Examiner has elaborated prior art disclosures of amended claims.

Conclusion

63. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

64. A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

65. Examiner would like to point out that any reference to specific figures, columns and lines should not be considered limiting in any way, the entire reference is considered to provide disclosure relating to the claimed invention.

66. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Juan C. Ochoa whose telephone number is (571) 272-2625. The examiner can normally be reached on 7:30AM - 4:00 PM.

67. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul Rodriguez can be reached on (571) 272-3753. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

68. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

*** jo 10/22/07

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